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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/987,862	11/16/2001	Masayuki Nakamoto	216140US2SRD	7787

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EXAMINER

GUHARAY, KARABI

ART UNIT	PAPER NUMBER
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2879

DATE MAILED: 08/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

09/987,862

Applicant(s)

NAKAMOTO, MASAYUKI

Examiner

Karabi Guharay

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Election, filed on 6/9/03.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 18-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 11-14 is/are rejected.
- 7) ☒ Claim(s) 3-10 and 15-17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other: _____

Election/Restrictions

Applicant's election of Group I, including claims 1-17, in Paper No. 5, filed on 6/09/03 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 18-20 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Group II, there being no allowable generic or linking claim.

Specification

The disclosure is objected to because of the following informalities: On page 14, line 25, element "Ta" is mentioned which is assumed to be a typographical error since element "Ta" is already mentioned in line 24.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2, 11-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Kawate et al. (US 2002/0060516).

Regarding claim 1, Kawate discloses a field emission cold cathode device of a lateral type (Fig 6) comprising a support substrate 1, a cathode electrode 3 disposed on the support substrate 2, and having a first side surface, a gate electrode 2 disposed on the support substrate 1, disposed laterally side by side with the cathode electrode 3 and having a second side surface opposing the first side surface and an emitter (4, 5 of Fig 3B) disposed on the first side surface to oppose the second surface, the emitter comprising a metal plating layer 5 formed on the first side surface and a plurality of granular or rod-shaped micro-bodies 4 (carbon fiber) supported in the metal plating layer 5 in a dispersed state, the micro-bodies consisting essentially of a material selected from the group consisting of fullerenes, carbon nanotubes, graphite, a metal with low work function, a material with a negative electron affinity and a metal material (see paragraph 80 of page 5- end of paragraph 82 on page 5, and paragraph 45 of page 2).

Regarding claim 2, Kawate discloses that metal plating layer 5 comprises a resistance ballast layer (metal oxide at the interface with carbon fiber) containing an additive (oxygen), which increases resistance of the metal plating layer (paragraph 45 of page 2).

Regarding claim 11, Kawate further discloses a surrounding member 92 (Fig 9) cooperating with the support substrate 81 to form a vacuum discharge space 97 that surrounds the cathode electrode 3, the gate electrode 2 and the emitter (4, 5) and an anode electrode (61 of Fig 6, not shown in Fig 9) disposed on the surrounding at a

Art Unit: 2879

position opposing the cathode electrode and the gate electrode (see Fig 9, and paragraph 148).

Regarding claim 12, Kawate discloses a vacuum micro-device (Fig 9, and Fig 6) comprising a support substrate 1, a cathode electrode 3 disposed on the support substrate 2, and having a first side surface, a gate electrode 2 disposed on the support substrate 1 disposed laterally side by side with the cathode electrode 3 and having a second side surface opposing the first side surface and an emitter (4, 5 of Fig 3B) disposed on the first side surface to oppose the second surface, the emitter comprising a metal plating layer 5 formed on the first side surface and a plurality of carbon nanotubes 4 supported in the metal plating layer 5 in a dispersed state (see paragraph 80 of page 5- end of paragraph 82 on page 5, and paragraph 45 of page 2), a surrounding member 92 (Fig 9) cooperating with the support substrate 81 to form a vacuum discharge space 97 that surrounds the cathode electrode 3, the gate electrode 2 and the emitter (4, 5) and an anode electrode (61 of Fig 6, not shown in Fig 9) disposed on the surrounding at a position opposing the cathode electrode and the gate electrode (see Fig 9, and paragraph 148).

Regarding claim 13, Kawate discloses that the surrounding member 97 (Fig 9) comprises a transparent opposite substrate (face plate 96, inherently transparent for light emission from the phosphor) and the anode electrode is a transparent electrode and a fluorescent layer 94 disposed on the opposite substrate 96 in the vacuum discharge space 97 (see paragraph 152).

Regarding claim 14, Kawate discloses that metal plating layer 5 comprises a resistance ballast layer (metal oxide at the interface with carbon fiber) containing an additive (oxygen), which increases resistance of the metal plating layer (paragraph 45 of page 2).

Allowable Subject Matter

Claims 3-10, 15-17 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claims 3-10, 15-17, the prior art of record neither shows nor suggests a lateral type cold cathode field emission device comprising all the claimed limitations of claims 3-10, and 15-17, particularly further limitations in claims 3-10, & 15-17.

Other Prior Art Cited

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure : Cho et al. (US 2003/0122467) ; Choi et al. (Us 6605894) ; Kim (US 5614795) ; Itoh et al. (US 5793153).

Contact Information

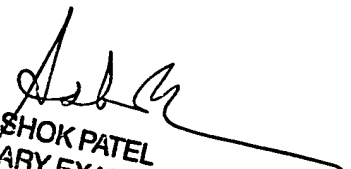
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karabi Guharay whose telephone number is (703) 305-1971. The examiner can normally be reached on Monday-Friday 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (703) 305-4794. The fax phone number for the organization is (703) 308-7382.

Art Unit: 2879

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

K.G.
Karabi Guharay
Patent Examiner
Art Unit 2879


ASHOK PATEL
PRIMARY EXAMINER